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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,599	01/20/2004	Stephen R. Van Doren	200313613-1	1105

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EXAMINER

CHERY, MARDOCHIE

ART UNIT	PAPER NUMBER
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2188

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/760,599	Applicant(s) VAN DOREN ET AL.	
	Examiner Mardochee Chery	Art Unit 2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-30 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action is in reply to applicants' communication filed on December 20, 2006 in response to PTO Office Action mailed on October 6, 2006. Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.
2. In response to the last Office Action, claims 18 and 23 have been amended. No claims have been added or canceled. As a result, claims 1-30 remain pending.

Response to Arguments

3. Applicant's arguments filed December 20, 2006 have been fully considered but they are not persuasive.
4. Applicants argue on page 8 of the remarks that Glasco does not disclose that "an ordering point can migrate from a node to memory", recited in claim 1.
 - a. Examiner strongly disagrees with such contention. Examiner would like to first make it clear that though the prior art must disclose the claimed invention in as complete detail as is contained in the claim, this is not however an ipsissimis verbis test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Though the prior art may use terms similar to that of applicants' claimed invention, it also suffices that the prior art discloses the claimed subject matter at least in the manner recited in applicants' specification.

- b. As described on page 6, paragraph [0028] of the specification, "the state of a cache line can be utilized to define a cache ordering point in a system. In particular, for a protocol implementing the states set forth in Table 1 (I, S, E, F, D, M, O), a cache line having one of the states M, O, E, F, or D can serve as an ordering point for the data contained in that cache line. In particular, a cache line having any one of the states M, O, and D must implement a write-back to memory upon displacement of the associated data. As a result of implementing the write-back, a cache ordering point for a given cache line will migrate from the cache of an associated processor to memory so that the memory contains a coherent copy of the data".
- c. Glasco unequivocally discloses as detailed on page 3 of the Office action mailed on October 6, 2006, and at least in paragraphs [0087, 0091] and paragraphs [0116, 0120-0123], "a system having a cache coherency directory where cache lines have states including modified (M), owned (O), shared (S), dirty (D), and invalid (I). If the directory entry indicates that the line is in the "dirty" state, the modified memory line to memory must first be written back to memory; the eviction of a cache coherency directory entry corresponding to a "dirty" line in a remote cache requires

that the remote cache writes the line back to memory". Thus, it is manifest that Glasco discloses, as claimed by applicants, "an ordering point can migrate from a node to memory" by virtue of his disclosure of a cache line having either a modified (M), Owned (O), or dirty (D) state and a write-back to memory upon displacement (i.e., line is dirty or evicted) and consequently a cache ordering point for a given cache line will migrate from the cache to memory".

- d. Examiner would like to further impugn Applicants contention on page 9, paragraph 1 of the remarks, that "even during an eviction or write transaction, such as during a write back to memory, a given memory controller remains the serialization point for the memory line before, during and after writing back to memory". Examiner also notes that applicants cite to Glasco, paragraphs [0137] and [0127] in support of those allegations. It is worth mentioning that Glasco neither in those paragraphs pointed to by applicants nor anywhere else teaches that "a given memory controller remains the serialization point for the memory line before, during and after writing back to memory" as alleged by applicants.
5. Applicants further argue on page 9, paragraph 1 of the remarks that Glasco fails to teach that "memory would provide any acknowledgement to indicate that the ordering point has migrated from the first node to the memory".

Examiner strongly disagrees since Glasco clearly discloses "in a cluster system, requests are generated to specific processors to invalidate cache entries and to write cache entries back to memory; if the directory entry indicates that the line is in the dirty state in any of the remote caches, the modified memory line to memory must first be written back to memory before the line is invalidated in each of the remote caches; paragraphs [0116, 0118, 0120]". Since "a cache line having a dirty (D) state must implement a write-back to memory upon displacement of the associated data and as a result of implementing the write-back, a cache ordering point for a given cache line will migrate from the cache of an associated processor to memory so that the memory contains a coherent copy of the data" Glasco's teaching of "sending invalidation messages to each of the remote caches in a cluster system if the directory entry indicates that the line is in the dirty state and the modified line must be written back to memory" in fact provides acknowledgment indicating that the ordering point has migrated from a node to memory.

6. Applicants argue on page 9, paragraph 2 of the remarks that Glasco taken in whole or part, fails to teach that "an ordering point migrate for data migrates to memory, such that there can be no broadcasting of a write-back message by the first node in response to the acknowledgment provided by the memory", as allegedly recited in claim 1.

- a. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an ordering point migrate for data migrates to memory, such that there can be no broadcasting of a write-back message by the first node in response to the acknowledgment provided by the memory) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
- b. Additionally, Examiner would like to make it clear that Applicant is reading limitations of the specification into the claims to thereby narrow the scope of the claims by implicitly adding disclosed limitations which have no express basis in the claims. This is impermissible importation of subject matter from the specification into the claim and such is not in accordance with USPTO rules and procedures. See MPEP 2111. See also *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997).

- 7. Applicants argue on page 9, paragraph 3 of the remarks that Glasco fails to teach or suggest that "a cache lines has associated state that defines the cache as a cache ordering point for the data prior to employing the write-back transaction", as allegedly recited in claim 1.

- a. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a cache lines has associated state that defines the cache as a cache ordering point for the data prior to employing the write-back transaction) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
 - b. Applicants' arguments in this regard are quite perplexed for one part, applicants admit, in paragraph 1 of page 9, that "even during an eviction or write transaction, such as during a write back to memory, a given memory controller remains the serialization point (cache ordering point) of the memory line before, during and after writing back to memory. See Glasco at para. [0137] and [0127]", and then in paragraph 3 of page 9 contend that Glasco fails to teach or suggest that "a cache lines has associated state that defines the cache as a cache ordering point for the data prior to employing the write-back transaction".
8. Applicants argue on page 10, paragraph 1 of the remarks that Glasco fails to teach "an associated state of a cache line defines the cache line as an ordering point for the data", recited in claim 2.

Examiner respectfully disagrees with such contention. Glasco clearly discloses “if a directory indicates that the line is in a “dirty” state in any of the remote caches, the modified memory line to memory must first be written back to memory; the eviction of a cache coherency directory entry corresponding to a “dirty” line in a remote cache requires that the remote cache write the line back to memory”; pars. [0116, 0120] as supported by par. [0028] of applicants’ specification wherein is disclosed “a cache line having any one of the states M, O, and D must implement a write-back to memory upon displacement of the associated data. As a result of implementing the write-back, a cache ordering point for a given cache line will migrate from the cache of an associated processor to memory so that the memory contains a coherent copy of the data”.

9. Applicants argue on page 10, paragraph 2 of the remarks that Glasco fails to disclose the at least one other node provides a response the first node acknowledging receipt of the write-back message broadcast by the first node”, recited in claim 3.

Examiner strongly disagrees. Contrary to applicants’ assumption, Glasco unequivocally discloses “a home controller (one other node) receives the “dirty” copy of the memory line, writes the line back to memory and notifies the cache coherence directory (i.e., the originator of the transaction or first node) that the transaction is complete”; par. [0126].

10. Applicants argue on page 10, paragraph 3 of the remarks that nothing in the cited sections of Glasco or elsewhere in Glasco is there a disclosure that the first node maintains the transaction active until the first node receives responses from at least one other node to the write back message that was broadcast by the first node".

Examiner respectfully disagrees. Glasco clearly discloses "a write back is generated for the cached memory line; the copy of the line in the cache is invalidated and the eviction mechanism is notified when the memory line has been written back to memory; once the memory controller accepts the sized write transaction, it does not allow any further transactions for the same memory line until the eviction process is completed"; pars. [0121-0123, 0127].

11. Applicants argue on page 11, paragraph 1 of the remarks that "Glasco fails to teach that any message or notification is broadcast by the originator of the transaction", as allegedly recited in claim 4.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., any message or notification is broadcast by the originator of the transaction) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not

read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

12. Applicants argue on page 11, paragraph 2 of the remarks that there is no teaching in Glasco of “a write back request to transfer an ordering point from cache of the first processor to memory, especially not in response to the write back request” allegedly recited in claim 9.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a write back request to transfer an ordering point from cache of the first processor to memory, especially not in response to the write back request) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Additionally, Examiner would like to direct applicants attention to the response provided to the arguments pertaining to claim 1 above.

13. Applicants' arguments on page 12 paragraph 1, with respect to claim 16, are identical in content, form, and substance to the arguments presented with respect to claim 1. Thus, Examiner relies on the response provided above, regarding claim 1, to rebut applicants' contention.

14. Applicants' arguments on page 12 paragraph 2, with respect to claim 23, are identical in content, form, and substance to the arguments presented with respect to claims 1 and 9. Thus, Examiner relies on the response provided above, regarding claims 1 and 9, to rebut applicants' contention.

15. Applicants argue on page 13, paragraph 3 of the remarks that Rowlands does not teach or suggest that "a transaction would be retried in response to recognizing a conflict", as recited in claim 5.

Examiner respectfully disagrees. The combination of Glasco and Rowlands is relied for the teaching of claim 5 and Glasco clearly discloses "it is possible that conflicting transactions may be generated during the time between when the cache coherence directory to evict a particular entry and the corresponding request is received by the memory controller; par [0137], while Rowlands discloses "retrying an address transfer to permit a modified cache block to be written to memory, or other coherency activity to occur; [par. 0113].

16. Applicants argue on page 13, paragraph 4 of the remarks that Glasco does not teach "a third node can recognize a conflict".

Examiner respectfully disagrees. Glasco clearly discloses "it is possible that conflicting transactions may be generated during the time between when the cache coherence directory to evict a particular entry and the corresponding request is received by the memory controller; par [0137].

17. Applicants' arguments with respect to claim 8 are persuasive. Hence, the rejection of claim 8 under 35 USC 103 is withdrawn.
18. Applicants' arguments on page 14 paragraph 4, with respect to claim 18, are identical in content, form, and substance to the arguments presented with respect to claims 1 and 9. Thus, Examiner relies on the response provided above, regarding claims 1 and 9, to rebut applicants' contention.
19. In view of the foregoing discussion, claims 1-7, and 9-30 are not patentably distinct over the combination of Glasco, Rowlands, and Arimilli. Additionally, applicants should eschew reading limitations of the specification into the claims and holding the cited art to the *ipsissimis verbis* test, i.e., identity of terminology is not required. Furthermore, in response to the Office action, applicants are advised to carefully study and review the cited art of record, and amend the claims to better recite patentable subject matter and further compact prosecution. Hence, the rejection of claims 1-7, and 9-30 is indeed strictly maintained and reiterated below with claim 8 objected to as being allowable for depending on a rejected base claim.

Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

21. Claims 1-4, 9, 14, 16-17, 20, 23-24, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Glasco (2005/0251626).

As per claim 1, Glasco discloses a system comprising: a first node that includes an ordering point for data [par. 45, ll 1-3], the first node being operative to employ a write-back transaction associated with writing data back to memory [par. 116, ll 5-8], the first node broadcasting a message to at least one other node in the system in response to an acknowledgement provided by the memory indicating that the ordering point for the data has migrated from the first node to the memory [par. 87, ll 11-16; pars. 120-123].

As per claim 2, Glasco discloses the first node comprises a processor having an associated cache that comprises a plurality of cache lines, one of the plurality of cache lines having an associated state that defines the cache line as a cache ordering point for the data prior to employing the write-back transaction [par. 126].

As per claim 3, Glasco discloses the at least one other node provides a response to the first node acknowledging receipt of the write-back message broadcast by the first node [par. 126].

As per claim 4, Glasco discloses the first node maintains the write-back transaction active until the first node receives responses from the at least one other node to the write-back message broadcast by the first node [pars. 121-123, par. 127, ll 13-15].

As per claim 9, the rationale in the rejection of claims 1 and 2 is herein incorporated.

As per claim 14, Glasco discloses the first processor comprises a cache line that contains the desired data in a state that defines the cache line as the ordering point for the desired data prior to issuing the write-back request to the memory [par. 87, ll 11-16; pars. 120-123].

As per claim 16, the rationale in the rejection of claim 1 is herein incorporated.

As per claim 17, the rationale in the rejection of claim 2 is herein incorporated.

As per claim 20, the rationale in the rejection of claim 2 is herein incorporated.

As per claim 23, the rationale in the rejection of claim 1 is herein incorporated.

As per claim 24, the rationale in the rejection of claim 3 is herein incorporated.

As per claim 29, the rationale in the rejection of claim 2 is herein incorporated.

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 5-6, 10-11, 13, 15, 18-19, 21-22, 25-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glasco (2005/0251626) in view of Rowlands (2003/0217236).

As per claim 5, Glasco discloses a third node that issues a source broadcast request for the data employing a source broadcast protocol [par. 127].

However, Glasco does not specifically teach the third node retrying the source broadcast request for the data in response to recognizing a conflict associated with the source broadcast request for the data as required.

Rowlands discloses the third node retrying the source broadcast request for the data in response to recognizing a conflict associated with the source broadcast request for the data [pars. 57 and 113] to write back a remote cache block that is being evicted from the node (par. 65).

Since the technology for implementing a system with a third node retrying the source broadcast request for the data in response to recognizing a conflict associated with the source broadcast request for the data was well known as evidenced by Rowlands, an artisan would have been motivated to implement this feature in the system of Glasco in order to write back a remote cache block that is being evicted from the node. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention by Applicant to modify the system of Glasco to include a third node retrying the source broadcast request for the data in response to recognizing a conflict associated with the source broadcast request for the data because this would have facilitated writing back a remote cache block that is being evicted from the node (par. 65) as taught by Rowlands.

As per claim 6, Glasco discloses the conflict is recognized by the third node in response to one of (i) receiving the write-back message broadcast by the first node

while the source-broadcast request for the data is active at the third node, or (ii) receiving a conflict response from the first node to the source broadcast request issued by the third node [par. 127].

As per claim 10, the rationale in the rejection of claim 5 is herein incorporated.

As per claim 11, the rationale in the rejection of claim 6 is herein incorporated.

As per claim 13, the rationale in the rejection of claim 8 is herein incorporated.

As per claim 15, Glasco discloses the state that defines the cache line as the ordering point for the desired data is selected from a group consisting of a modified state, an owner state and a dirty state, the cache line transitioning to an invalid state after issuing the write-back request to the memory [par. 87, ll 11-16; par. 120].

As per claim 18, Rowlands discloses means for retrying an outstanding transaction associated with migration of the ordering point to the memory from the associated cache in response to receiving the acknowledgment of receipt of source broadcast write-back message [pars. 0057, 0065, and 113].

As per claim 19, the rationale in the rejection of claim 5 is herein incorporated.

As per claim 21, the rationale in the rejection of claim 15 is herein incorporated.

As per claim 22, the rationale in the rejection of claim 15 is herein incorporated.

As per claims 25 and 26, the rationale in the rejection of claim 5 is herein incorporated.

As per claim 27, the rationale in the rejection of claim 5 is herein incorporated.

As per claim 28, the rationale in the rejection of claim 6 is herein incorporated.

As per claim 30, the rationale in the rejection of claim 15 is herein incorporated.

24. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glasco (2005/0251626) in view of Rowlands (2003/0217236) and further in view of Arimilli (6,138,218).

As per claim 7, Glasco and Rowlands disclose the claimed invention as discussed above.

However, Glasco and Rowlands do not specifically teach a third node retries the source broadcast request employing a forward progress protocol as required.

Arimilli discloses a third node retries the source broadcast request employing a forward progress protocol [col. 1, ll 6-12] in order to allow other traffic to proceed and alleviate the prospect of a livelock (col. 1, ll 13-14).

Since the technology for implementing a system with a third node retries the source broadcast request employing a forward progress protocol was well known as evidenced by Arimilli, an artisan would have been motivated to implement this feature in the system of Glasco and Rowlands in order to allow other traffic to proceed and alleviate the prospect of a livelock. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention by Applicant, to modify the system of Glasco and Rowlands to include a third node retrying the source broadcast request employing a forward progress protocol since this would have allowed other traffic to proceed and alleviated the prospect of a livelock (col. 1, ll 13-14) as taught by Arimilli.

As per claim 12, the rationale in the rejection of claim 7 is herein incorporated.

Allowable Subject Matter

25. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

26. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

27. When responding to the office action, Applicant is advised to clearly point out the patentable novelty that he or she thinks the claims present in view of the state of the art disclosed by references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. 1.111(c).

28. When responding to the Office action, Applicant is advised to clearly point out where support, with reference to page, line numbers, and figures, is found for any amendment made to the claims.


Art Unit: 2188

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mardochee Chery whose telephone number is (571) 272-4246. The examiner can normally be reached on 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on (571) 272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

March 12, 2007


HYUNG SOUGH
3-19-07


Mardochee Chery
Examiner
AU: 2188